

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended): A heat sealing and cutting mechanism to form a heat seal seals and a cut across a tube of flexible packaging material, said heat sealing and cutting mechanism comprising:

a carrier to contact said tube;

a pair of closely spaced heat sealing bands on said carrier, said heat sealing bands being energizable to form closely spaced heat seals across said tube when said carrier is in contact with said tube and said heat sealing bands are energized, ~~said heat sealing bands being configured to define temperature gradients therealong~~; and

a cutting element on said carrier and disposed between said heat sealing bands, said cutting element being energizable to cut said tube when said carrier is in contact with said tube, an undersurface of said cutting element being serrated to define a set of spaced teeth, said teeth being embedded in an electrically insulating backing affixed to said carrier, said cutting element presenting a cutting edge in front of said backing.

2. (Currently Amended): A heat sealing and cutting mechanism according to claim 1 wherein said heat sealing bands are vulcanized onto ~~an electrically insulating~~ said backing ~~that is affixed to said carrier.~~

3. (Original): A heat sealing and cutting mechanism according to claim 2 wherein each heat sealing band has indentations formed in at least one side thereof at spaced locations to define a set of fins.

4. (Original): A heat sealing and cutting mechanism according to claim 3 wherein each heat sealing band has indentations formed in opposite sides thereof to define two sets of fins, the indentations formed in each side being generally aligned so as to generally align the fins of each set.

5. (Previously Presented): A heat sealing and cutting mechanism according to claim 2 wherein said cutting element is vulcanized onto said backing.

6. Cancelled

7. (Currently Amended): A heat sealing and cutting mechanism according to claim [6] 1 wherein said heat sealing bands and said cutting element are curved.

8. (Currently Amended): A heat sealing and cutting mechanism according to claim [5] 1 wherein the ends of said heat sealing bands are joined at tabs, said tabs extending beyond the ends of said backing and being connectable to a power supply.

9. (Previously Presented): A heat sealing and cutting mechanism according to claim 8 wherein tabs are formed at the ends of said cutting element, said cutting element tabs extending through said backing and said carrier and being connectable to a power supply.

10. (Original): A heat sealing and cutting mechanism according to claim 9 wherein said carrier is formed of anodized aluminum and said backing is formed of silicon rubber.

11. (Original): A heat sealing and cutting mechanism according to claim 1 wherein said heat sealing bands are convex.

12. (Currently Amended): A heat sealing and cutting station for a container forming apparatus to form heat seals and cuts across a fluid filled tube of flexible packaging material at longitudinally spaced locations, said heat sealing and cutting station comprising:

a heat sealing and cutting mechanism including:

a carrier to contact said tube;

a pair of closely spaced heat sealing bands on said carrier, said heat sealing bands being energizable to form closely spaced heat seals across said tube when said carrier is in contact with said tube and said heat sealing bands are energized; ~~said heat sealing bands being configured to define temperature gradients therealong when energized;~~ and

a cutting wire on said carrier and disposed between said heat sealing bands, said cutting wire being energizable to cut said tube when said carrier is in contact with said tube;

a support on which said carrier is mounted, on one side of said tube, said support being movable between a retracted position where said carrier is spaced from said tube and an extended position where said carrier is in contact with said tube;

a backing plate on an opposite side of said tube, said backing plate being aligned with said carrier and being movable between a retracted position spaced from said tube and an extended position in contact with said tube; and

a drive operable on said support and said backing plate to move said carrier and backing plate between the retracted positions where said tube is free and said extended positions where said tube is trapped between said carrier and backing plate wherein an undersurface of said cutting wire is serrated to define a set of spaced teeth, said teeth being embedded in an electrically insulated backing affixed to said carrier, said cutting wire presenting a cutting edge in front of said backing.

13. (Currently Amended): A heat sealing and cutting station according to claim 12 wherein said heat sealing bands and said cutting wire are vulcanized onto ~~an~~ said electrically insulating backing ~~that is affixed to said carrier and wherein said cutting wire is vulcanized onto said backing,~~ said cutting wire being generally centrally disposed between said heat sealing bands.

14. (Original): A heat sealing and cutting station according to claim 13 wherein each heat sealing band has indentations formed in at least one side thereof at spaced locations to define a set of fins.

15. (Original): A heat sealing and cutting station according to claim 14 wherein each heat sealing band has indentations formed in opposite sides thereof to define two sets of fins, the indentations formed in each side being generally aligned so as to generally align the fins of each set.

16. (Original): A heat sealing and cutting station according to claim 12 wherein said backing plate has an electrically insulating backing thereon, said backing being convex in shape and having a groove formed therein, said groove being aligned with said cutting wire.

17. Cancelled

18. (Currently Amended): A heat sealing and cutting station according to claim ~~17~~ 16 wherein said carrier is formed of anodized aluminum and wherein said backings are formed of silicon rubber.

19. (Currently Amended): A heat sealing and cutting station for a container forming apparatus to form heat seals and cuts across a tube of flexible packaging material at longitudinally spaced locations, said heat sealing and cutting station comprising:

at least one set of jaws moveable between an open position where said tube is free and a closed position where said tube is trapped between said jaws;

a heat sealing and cutting mechanism carried by one of said jaws, said heat sealing and cutting mechanism including:

a pair of curved, closely spaced heat sealing bands mounted on an electrically insulating backing, said heat sealing bands being energizable to form closely spaced heat seals across said tube when said tube is trapped between said jaws and said heat sealing bands are energized, ~~said heat sealing bands being configured to define temperature gradients therealong when energized;~~ and

a cutting element on said one jaw and disposed between said heat sealing bands, said cutting element being energizable to cut said tube when said tube is trapped between said jaws, an undersurface of said cutting element being serrated to define a set of spaced teeth, said teeth being embedded in said backing, said cutting element presenting a cutting edge in front of said backing; and

at least one power supply to energize said heat sealing bands and said cutting wire.

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20. (Original): A heat sealing and cutting station according to claim 19 wherein each heat sealing band has indentations formed in at least one side thereof at spaced locations to define a set of fins.

21. (Original): A heat sealing and cutting station according to claim 20 wherein each heat sealing band has indentations formed in opposite sides thereof to define two sets of fins, the indentations formed in each side being generally aligned so as to generally align the fins of each set.

22. (Currently Amended): A heat sealing and cutting mechanism according to claim ~~24~~ 19 wherein said heat sealing bands are convex.

23. (Original): A heat sealing and cutting mechanism according to claim 22 wherein said other jaw carries an insulating convex backing.

24. (Previously Presented) A heat sealing and cutting mechanism according to claim 23 wherein said convex backing has a groove formed therein that is aligned with said cutting element.

25-33. Cancelled

34. (Currently Amended): A heat sealing and cutting mechanism to form a heat seal ~~seal~~ seals and a cut across a tube of flexible packaging material, said heat sealing and cutting mechanism comprising:

a ~~carrier to contact said tube~~ set of jaws moveable between an open position where said tube is free and a closed position where said tube is trapped between said jaws;

a pair of closely spaced, generally convex heat sealing bands on one of said ~~carrier jaws~~, said heat sealing bands being energizable to form closely spaced heat seals across said tube when said ~~carrier is in contact with said tube~~ jaws are in said closed position and said heat sealing bands are energized; and

a cutting element on said ~~carrier and~~ one jaw disposed between said heat sealing bands, said cutting element being energizable to cut said tube when said ~~carrier is in contact with said tube~~ jaws are in said closed position; and
a convex backing on the other of said jaws.

35. (Currently Amended): A heat sealing and cutting mechanism according to claim 34 wherein said heat sealing bands and cutting element are vulcanized onto an electrically insulating backing that is affixed to said ~~carrier~~ one jaw.

36. Cancelled

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37. (Previously Presented): A heat sealing and cutting mechanism according to claim 34 wherein said heat sealing bands and said cutting element are curved.

38. (Currently Amended): A heat sealing and cutting mechanism according to claim [34] 35 wherein the ends of said heat sealing bands are joined at tabs, said tabs extending beyond the ends of said backing and being connectable to a first power supply.

39. (Previously Presented) A heat sealing and cutting mechanism according to claim 38 wherein tabs are formed at the ends of said cutting element, said cutting element tabs extending through said backing and said carrier and being connectable to a second power supply.

40. (Currently Amended): A heat sealing and cutting mechanism according to claim [34] 35 wherein said carrier is formed of anodized aluminum and said backing is formed of silicon rubber.

41. (Currently Amended): A heat sealing and cutting station for a container forming apparatus to form heat seals and cuts across a fluid filled tube of flexible packaging material at longitudinally spaced locations, said heat sealing and cutting station comprising:

a heat sealing and cutting mechanism including:

a carrier to contact said tube;

a pair of closely spaced, generally convex heat sealing bands on said carrier, said heat sealing bands being energizable to form closely spaced heat seals across said tube when said carrier is in contact with said tube and said heat sealing bands are energized; and

a cutting element on said carrier ~~and~~ disposed between said heat sealing bands, said cutting element being energizable to cut said tube when said carrier is in contact with said tube;

a support on which said carrier is mounted, on one side of said tube, said support being movable between a retracted position where said carrier is spaced from said tube and an extended position where said carrier is in contact with said tube;

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B a backing plate on an opposite side of said tube, said backing plate being aligned with said carrier and being movable between a retracted position spaced from said tube and an extended position in contact with said tube, said backing plate presenting a generally convex surface towards said carrier and having a groove therein aligned with said cutting element; and

a drive operable on said support and said backing plate to move said carrier and backing plate between the retracted positions where said tube is free and the extended positions where said tube is trapped between said carrier and backing plate.

42. (Currently Amended): A heat sealing and cutting station according to claim 41 wherein said heat sealing bands and cutting element are vulcanized onto an electrically insulating backing that is affixed to said carrier ~~and wherein said cutting element is vulcanized onto said backing~~, said cutting element being generally centrally disposed between said heat sealing bands.

43. (Currently Amended): A heat sealing and cutting station according to claim 42 wherein said backing plate has an electrically insulating backing thereon, said backing being convex in shape and having a said groove formed therein, ~~said groove being aligned with said cutting element~~.

44. (Previously Presented) A heat sealing and cutting station according to claim 43 wherein said carrier is formed of anodized aluminum and wherein said backings are formed of silicon rubber.

45. (Currently Amended): A heat sealing and cutting station for a container forming apparatus to form heat seals and cuts across a tube of flexible packaging material at longitudinally spaced locations, said heat sealing and cutting station comprising:

at least one set of jaws moveable between an open position where said tube is free and a closed position where said tube is trapped between said jaws;

a heat sealing and cutting mechanism carried by one of said jaws, said heat sealing and cutting mechanism including:

a pair of curved, closely spaced, ~~generally convex~~ heat sealing bands mounted on an electrically insulating backing, said heat sealing bands being energizable to form closely spaced heat seals across said tube when said tube is trapped between said jaws and said heat sealing bands are energized; and

a cutting element on said one jaw and disposed between said heat sealing bands, said cutting element being energizable to cut said tube when said tube is trapped between said jaws;

a generally convex backing carried by the other of said jaws, said backing having a groove formed therein to accommodate said cutting element when said at least one set of jaws is in said closed position; and

at least one power supply to energize said heat sealing bands and said cutting element.

46. Cancelled

47. Cancelled

48. (Currently Amended): A heat sealing and cutting mechanism according to claim 45 wherein said heat sealing bands and cutting element are curved and wherein said heat sealing bands are generally convex.

49-53. Cancelled

54. (Currently Amended): A heat sealing and cutting mechanism to form heat seals and [cute] a cut across a tube of flexible packaging material, comprising:

a pair of members movable relative to one another between an open condition where said tube is free and a closed condition where said tube is trapped between said members;

at least one heat sealing band on one of said members, said at least one heat sealing band presenting an outer generally convex surface facing said tube, said at least one heat sealing band forming a heat seal across said tube when said at least one heat sealing band is energized and said members are in said closed condition; and

a cutting element on one of said members, said cutting element forming a cut across said tube when said cutting element is energized and said members are in said closed condition, an undersurface of said cutting element being serrated to define a set of spaced teeth, said teeth being embedded in a backing affixed to said one member, said cutting element presenting a cutting edge in front of said backing.

55. Cancelled

56. (Currently Amended): A heat sealing mechanism according to claim [55] 54 wherein said at least one heat sealing band ~~is~~ and said cutting element are vulcanized on said ~~insulating~~ backing.

57. (Previously Presented): A heat sealing mechanism according to claim 56 including a pair of closely spaced heat sealing bands on said one member.

58. (Currently Amended): A heat sealing and cutting mechanism according to claim 54 wherein said at least one heat sealing band and said cutting element are on the same ~~one~~ member.

59. (Currently Amended): A heat sealing and cutting mechanism according to claim 58 wherein said cutting element extends forwardly from said one member and ~~when another~~

wherein a second of said members has a groove ~~then~~ therein corresponding in shape ~~the~~ to said cutting element, said groove accommodating said cutting element when said members are in said closed condition.

60. (Currently Amended): A heat sealing and cutting mechanism according to claim 59 wherein said [another] second member includes an insulating backing to [content] contact said tube, said [insulator] insulating backing having said groove formed therein.

61-65: Cancelled

66. (New): A heat sealing and cutting mechanism to form a heat seal and a cut across a tube of flexible packaging material, comprising:

a pair of support elements movable relative to one another between an open condition where said tube is free and a closed condition where said tube is trapped between said members;

at least one heat sealing band on a first of said support elements, said at least one heat sealing band forming a heat seal across said tube when said at least one heat sealing band is energized and said support elements are in said closed condition;

a cutting element on said first support element, said cutting element forming a cut across said tube when said cutting element is energized and said support elements are in said closed condition; and

a backing on a second of said support elements, said backing having a groove formed therein aligned with said cutting element to accommodate said cutting element when said support elements are in said closed condition.

67. (New): A heat sealing and cutting mechanism according to claim 66 wherein said backing presents a generally convex surface towards said first support element.

68. (New): A heat sealing and cutting mechanism according to claim 67 wherein a pair of heat sealing bands are provided on said first support element and wherein said cutting element is positioned between said heat sealing bands.

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69. (New): A heat sealing and cutting mechanism according to claim 67 wherein said heat sealing bands and cutting element are curved.

70. (New): A heat sealing and cutting mechanism according to claim 69 wherein said heat sealing bands present convex surfaces towards said backing.
